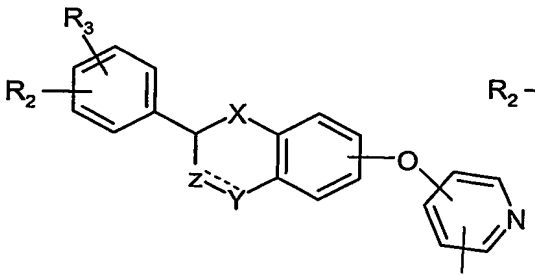
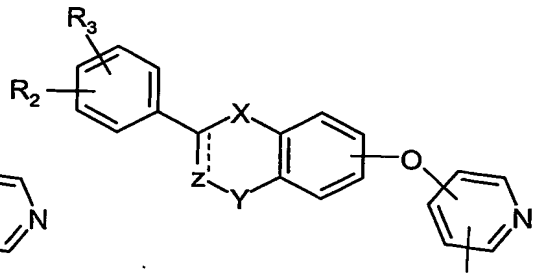
Claims

1. Compounds of formula (I) or (II):



(I)



(II)

wherein

X is -O-, -CH_2- or -C(O)-;

Z is –CHR_{12}- or valence bond;

Y is -CH_2-, -C(O)-, $CH(OR_{13})$-, -O-, -S-;

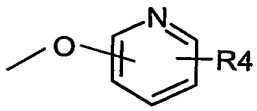
provided that in case Z is a valence bond, Y is not C(O);

the dashed line represents an optional double bond in which case Z is –CR_{12}- and Y is

-CH_2-, -C(O)- or $CH(OR_{10})$- (in formula II) or

-CH- (in formula I);

R_2 and R_3 are independently H, lower alkyl, lower alkoxy, -NO_2, halogen, -CF_3, -OH, benzyloxy or a group of formula (IIIa)

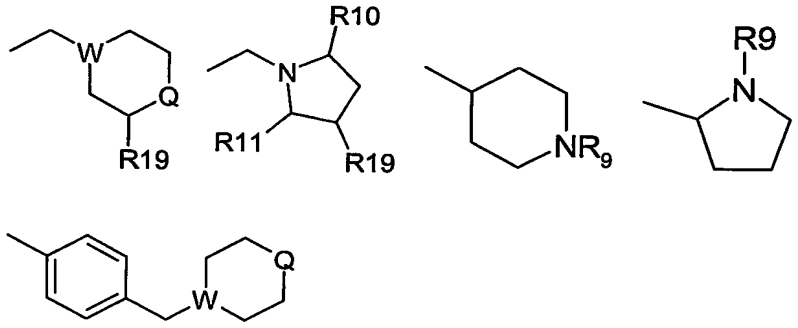


(IIIa)

R_1 is H, CN, halogen, -$CONH_2$, -$COOR_{15}$, -$CH_2NR_{15}R_{18}$, $NHC(O)R_5$, $NHCH_2R_5$, NHR_{20}, $NR_{21}R_{22}$, $NHC(NH)NHCH_3$ or, in case the compound is of formula (II) wherein the optional double bond exists or in case R_2 or R_3 is benzyloxy or a group of formula (IIIa) or in case the pyridine ring of formula (I) or (II) is attached to the oxygen atom in 3-, 4- or 5-position, R_1 can also be -NO_2 or $NR_{16}R_{17}$;

R_4 is H, -NO_2, CN, halogen, -$CONH_2$, -$COOR_{15}$, -$CH_2NR_{15}R_{18}$, -$NR_{16}R_{17}$, -$NHC(O)R_5$ or -$NHC(NH)NHCH_3$;

R_5 is alkyl substituted with 1-3 substituents selected from the group consisting of halogen, amino and hydroxy, or carboxyalkyl, in which the alkyl portion is optionally substituted with 1-3 substituents selected from the group consisting of halogen, amino and hydroxyl, $-CHR_6NR_7R_8$ or one of the following groups:



W is N or CH;

Q is CHR_{14}, NR_9, S or O;

R_6 is H or lower alkyl;

R_7 and R_8 are independently H, acyl, lower alkyl or lower hydroxyalkyl;

R_9 is H, lower alkyl or phenyl;

R_{10} and R_{11} are independently H or lower alkyl;

R_{12} is H or lower alkyl;

R_{13} is H, alkylsulfonyl or acyl;

R_{14} is H, -OH, $-COOR_{15}$;

R_{15} is H or lower alkyl;

R_{16} and R_{17} are independently H, acyl, alkylsulfonyl, $-C(S)NHR_{18}$ or $-C(O)NHR_{18}$;

R_{18} is H or lower alkyl;

R_{19} is H or -OH;

R_{20} is a pyridinyl group optionally substituted with a $-NO_2$ group;

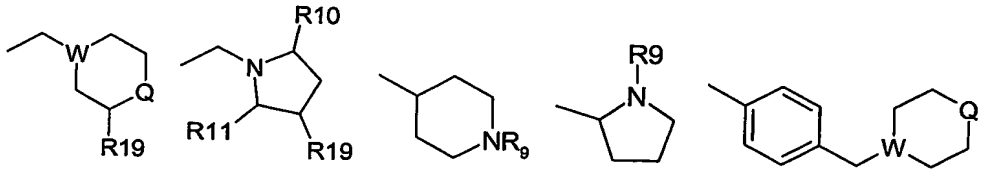
R_{21} and R_{22} are lower alkyl;

and pharmaceutically acceptable salts and esters thereof.

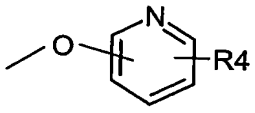
2. A compound according to claim 1 wherein R_1 is $-NHC(O)R_5$, X is O, Y is CH_2 and Z is CHR_{12}.

3. A compound according to claim 2 wherein Z is CH_2 and R_5 is alkyl substituted with 1-3 substituents selected from the group consisting of halogen,

amino and hydroxy, or carboxyalkyl, in which the alkyl portion is optionally substituted with 1-3 substituents selected from the group consisting of halogen, amino and hydroxyl, $-CHR_6NR_7R_8$ or one of the following groups:



4. A compound according to claim 1 wherein R_2 or R_3 is a benzyloxy or a group of formula (IIIa)



(IIIa)

5. A compound according to claim 4 wherein R_4 is NO_2.

6. A compound according to claim 4 or 5 wherein R_1 is NO_2

7. A pharmaceutical composition comprising a compound of claim 1 together with a pharmaceutically acceptable carrier.

8. A method for inhibiting Na^+/Ca^{2+} exchange mechanism in a cell, comprising administering to a subject in need thereof a therapeutically effective amount of a compound of claim 1.

9. A method for treating arrhythmias, comprising administering to a subject in need thereof a therapeutically effective amount of a compound of claim 1.